

PGB Warhead IM Development

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BAE SYSTEMS Land Systems is developing a range of IM compliant artillery projectile Paveway™ IV is Raytheon Systems Limited (RSL) solution to the UK MOD Precision Guided Bomb (PGB) Programme. The warhead utilised in this system is required to have the same external profile as a standard MK82 General Purpose Bomb as defined in NATO AOP 12, yet have significantly higher performance in terms of penetration and survivability against concrete targets. In addition, the warhead is required to be compliant with the Insensitive Munitions (IM) requirements defined in STANAG 4439, as far as practicable.

This paper will briefly describe the activities that led from concept identification, modelling, selection, risk reduction testing and formal qualification of the warhead design.

The Design Authority (DA) for the PGB warhead is Raytheon Missile Systems (RMS) Tucson, Az; warhead cases are manufactured by General Dynamics, Tx and are loaded by Societa Esplosivi Industriali (SEI) with PBXN-109.

Following extensive concept studies supported by modelling and design assessment a number of candidate designs were subjected to trial in the US to provide proof of design. Following final design selection and approval the PGB warhead has been further subjected to a series of IM trials as part of the formal PGB Qualification Programme. These were as follows: • Fast Cook Off to STANAG 4240 • Slow Cook Off to STANAG 4382 • Fragment Attack to STANAG 4496. Additional analysis has shown that the warhead also meets Bullet Impact requirements.

Although a requirement of STANAG 4439 both Shaped Charge Jet Attack and Sympathetic Reaction tests were not undertaken as modelling results predicted that these IM requirements could not be achieved without significant mitigation, which was deemed impracticable.

Following completion of the warhead design, development and qualification process, test data will be submitted to the Defence Ordnance Safety Group's (DOSG) Insensitive Munitions Panel (IMAP) for endorsement as part of the Weapon Acceptance Process.